HYDRAULIC PUMP SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

The work covered by this set of specifications consists of furnishing two (2) hydraulic pump systems with structural steel support frames. The pump systems will be installed at Allegheny Lock and Dam 6 and Allegheny Lock and Dam 7 under separate contract at a later date. All specifications herein apply to both hydraulic pump systems.

1.2 PAYMENT

Payment for the work covered by this section will be made at the contract lump sum prices for "Hydraulic Pump System", Allegheny L/D 6" and "Hydraulic Pump System, Allegheny L/D 7". These lump sum prices shall include all supports, equipment, piping, wiring, delivery, field service during future installation, and field training. There is no installation under this contract.

1.3 GENERAL REQUIREMENTS

1.3.1 Equipment Guards and Access

Exposed moving parts, parts that produce high operating temperatures, parts that may be electrically energized, and parts that are of such a nature or are so located as to be a hazard to operating personnel shall be insulated, fully enclosed, guarded, or fitted with other types of safety devices. The safety devices shall be installed in such a manner that proper operation of the equipment is not impaired.

1.3.2 Standard Products

Material and equipment provided shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall essentially duplicate items that have been in satisfactory use for at least ten (10) years prior to bid opening. Items of the same classification shall be identical, including equipment, assemblies, parts, and components.

1.3.3 Nameplates

A nameplate shall be securely attached to each major component of the equipment furnished. The nameplate shall reflect the manufacturer's name and address, and shall completely identify the component as to rating, style, type, and catalog number. Electrical equipment listed in UL Electric Equipment Directory shall have a UL label or registration plate securely attached to the item of equipment. Fasteners and nameplates shall be of corrosion-resistant materials.

1.3.4 Welding

All welding shall be in accordance with qualified procedures using performance qualified welders and welding operators. Procedures and welders shall be qualified in accordance with ASME BPVC SEC IX. Welding procedures qualified by others, and welders and welding operators qualified by another employer may be accepted as permitted by ASME BPVC SEC IX.

1.3.5 Workmanship

Workmanship shall be of the highest grade and in accordance with the best modem practices to conform to the specifications for the item of work being furnished.

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following submittals shall be submitted with the bid package, unless noted otherwise.

SD-01 Data

Manufacturer's Catalog Data; GA ED.

The Contractor shall submit catalog cuts and supporting data for the hydraulic pump systems, in sufficient detail as determined by the Contracting Officer to demonstrate that the equipment supplied is in compliance with these specifications.

Spare Parts Data; GA ED.

Spare parts data for each hydraulic pump system shall be submitted. The data shall include a complete list of parts and supplies, including lubricants, current unit prices, sources of supply, and a list of the parts recommended by the manufacturer to be replaced on a one (1) and three (3) year basis.

Material, Equipment, and Fixture Lists; GA ED.

Upon delivery, a list of all materials, equipment, and fixtures incorporated into the work shall be submitted, including catalog numbers, and warranty information.

SD-06 Instructions

Installation Instructions; FIO.

Upon delivery, the Contractor shall provide installation instructions and diagrams for the installation of each hydraulic pump system.

SO-09 Reports

Test Reports; FIO.

Upon delivery, certified test reports shall be submitted for all tests, as determined by the Contracting Officer.

SO-13 Certificates

Certificates of Compliance; FIO.

Upon delivery, a certificate shall be submitted for each hydraulic pump system, certifying that the hydraulic oil has been filtered to a ten (10) micron level prior to testing of hydraulic pump system.

SD-19 Operation and Maintenance Manuals

Operation and Maintenance Manuals; GA ED.

Upon delivery, four (4) copies of operation and maintenance manuals shall be furnished for each hydraulic pump system provided.

1.5 WARRANTY

Equipment supplied under this contract shall be warranted against defects in materials or workmanship for a period of not less than one (1) year after their installation and startup. Installation and startup will take place under separate contract within three (3) years after date of acceptance of the delivery of the equipment.

1.6 PACKAGING

The equipment to be supplied under this contract will be installed at a later date by others. The equipment shall be packaged for long term storage in a warehouse environment to protect the items from humidity and temperature variation, dirt and dust, or other contaminants conforming to requirements in ASTM D 3951 98 (2004) Commercial Packaging. Boxes or crates shall be adequately marked as to their contents. Each item shall be supported on blocking and sufficiently secured for transport. The items to be furnished under this contract shall be delivered by river or by truck to the Pittsburgh Engineer Warehouse and Repair Shops (PEWARS), 3500 Grand Avenue, Neville Island, Pittsburgh, PA 15225-1584. Shipments are received at the warehouse between 8:00 am and 3:00 pm, Monday through Friday, Federal holidays excluded. The Contractor shall notify the Technical Point of Contact, David Turcsanyi, 412-395-7524 (Alternate POC, Sue Majewski, 412-395-7382) Contracting Officer at least 48 hours prior to the approximate time of delivery. Upon delivery to PEWARS, the Contractor and a Government Representative shall perform a joint inspection of the damages that may have occurred during shipment. After this inspection is complete, the Government shall off-load the items from the Contractor's barge or truck. The Government will provide a forklift or crane and operator and labor to unload the items. The Contractor shall be responsible for repair of any damages that

occur during shipment of the items to the Government. All damages shall be corrected to the satisfaction of the Contracting Officer at the Contractor's expense.

PART 2 PRODUCTS

2.1 HYDRAULIC PUMPS AND RESERVOIR

2.1.1 General

Each hydraulic pump power unit shall be of flooded suction design (pumps below fluid level) and shall consist of two horizontal pumps and drive motor assemblies, reservoir, and valves mounted upon a rigid structural steel base. One spare pump shall be provided for each of the two hydraulic power units. The design of the power unit shall conform to specifications of the Joint Industrial Council. Included in the folio of drawings is a shop drawing for a previously procured temporary hydraulic pump system and the support frame fabrication details. These drawings show the types, sizes and layout of various components to be furnished under this solicitation. Also included are photographs of a previously procured hydraulic power system installed at a Lock and Dam on the Allegheny River. These photographs are intended to provide an overall view of a typical installation, and to show the general layout, configuration and arrangement of the components.

2.1.2 Oil Pumps

2.1.2.1 General

The oil pumps shall be of the constant delivery screw type suitable for pumping directly into a closed hydraulic system in which a nearly constant pressure is maintained. For each hydraulic system, three (3) identical pumps shall be furnished, two (2) for delivering oil at a relatively constant pressure to the several hydraulic cylinders in the system for operating lock miter gate and filling and emptying valve machinery, and one (1) spare. Operating demands on the pump will vary from maximum rated delivery to the low volume demands required when starting, stopping or inching miter gates and operating emptying and filling valve cylinders. The pumps shall be horizontally mounted and shall be driven by means of electric motors suitably connected to the pumps by gear type flexible couplings. The pump design shall conform to the specifications of the Joint Industrial Council. All pumps shall be capable of delivering a smooth and uniform flow of hydraulic oil conforming to the requirements specified hereunder. They shall be reasonably free of vibration and excessive noise. The pumps shall have flanged suction and discharge openings cast integral with the pump casings. The flanges shall be face drilled for connection to similar flanges on the suction and discharge pipes. Rotating elements shall be finished accurately and, if not constructed as integral parts of the shafts, they shall be keyed, splined, pinned or riveted to the shafts in an approved manner to prevent displacement in operation. Stuffing boxes shall be of the type recommended by the pump manufacturer. Each pump and driving motor shall be assembled on a common base as specified in paragraph "Pump Assembly Base" below.

2.1.2.2 Capacity

The pumps provided shall be of the positive displacement, rotary screw type, with Buna N seals and O-rings. Each pump shall each have a capacity of not less than 100 gallons per minute at 300 pounds per square inch. The pumps shall be suitable for pumping oil having a viscosity range of 225 to 1000 SSU.

2.1.2.3 Pump Casings

Pump casings shall be designed to permit ready removal of the inside working parts as a cartridge. Casing interiors shall be smooth-cored with easy bends wherever the direction of the flow is changed.

2.1.2.4 Sound Rating

The sound rating of the pumps shall not exceed 85dB (A) at full rated pressure, determined in accordance with ANSI B93.71. Pump noise and vibration isolation shall be achieved with flexible intake and discharge lines (flexible hose or equivalent) and vibration isolation pads between motor mounts and the hydraulic reservoir.

2.1.3 Pump Motors

The pump motors shall conform to the applicable requirements of NEMA MG 1, except as hereinafter specified, and shall be designed to withstand full voltage starting. The motor shall be of totally enclosed frame construction and shall be fan cooled, NEMA Design B, continuous duty, with a service factor of 1.15. The motor shall be suitable for applications with exposure to water, dirt, and corrosives.

2.1.3.1 Rating

The motors shall operate on 480 volts, 60 Hz, 3 phase power and shall be sized to operate the pumps specified in paragraph "Oil Pumps" without exceeding the nameplate rating of the motor. The motors shall be designed to operate continuously without exceeding the temperature rise permitted by the applicable NEMA standards for the class of insulation and frame construction used.

2.1.3.2 Winding Insulation

The winding insulation shall be Class F with special moisture, fungus, and oil-proof treatment. The winding insulation shall be of the type designed and constructed to withstand the severe moisture conditions and the wide range in ambient temperature to which the motors will be subjected.

2.1.3.3 Winding Heaters

A heater or heaters shall be installed in the motor frame or end bells or wrapped around the winding end turns. The heater shall be capable of withstanding the same temperature extremes as the motor. The heaters shall be such that, when energized, the temperature of the motor winding will be held approximately 10 degrees C above ambient. They shall be designed for 120 volts AC continuous operation. The heaters shall withstand 10 percent overvoltage continuously. Terminals of the heaters, including the leads, shall be watertight. The leads shall be terminated in the motor lead terminal box.

2.1.4 Pump Assembly Base

The base for each pump assembly may be either an iron or steel casting, or it may be fabricated of structural steel shapes completely shop-welded and restraightened and machined as necessary for proper alignment before assembly of pump and motor. Each base shall be of rigid construction and pleasing appearance. All top bearing surfaces shall be machined and the pump and motor shall be positioned by dowels or key plates in correct alignment and bolted firmly to the base. Suitable drip-proof edges shall be provided around the top of the base with provisions for draining off accumulations of oil. The driving motors shall be centered accurately with the pump shafts.

2.1.5 Hydraulic Oil Reservoir

The hydraulic oil reservoir shall be of heavy plate construction with adequate bar reinforcing, and shall be of the general configuration shown on the drawings. The minimum tank capacity shall be 400 gallons, and tank length shall be limited to suit space limitations. Openings shall be provided for suction, return, fill, vent and drain connections at the approximate locations shown on the drawings. All openings shall be reinforced. The tank shall have an inspection opening in the top. A perforated baffle plate shall be constructed in the bottom of the tank between the inlet and outlet connections to segregate the oil returning to the tank from that being taken up by the pumps. The tank shall be equipped with sight level gages complete with shutoff cocks and guard rods. A lock type drain cock shall be provided at the bottom of the tank. The return line in the tank shall be fitted with a pipe tee for side discharge and shall extend below the surface of the oil in the tank as shown on the drawings. The tank shall be tested for leaks at a hydrostatic pressure of 10 pounds per square inch. All leaks observed during the test shall be repaired before the tank is shipped to the job. After leaks have been repaired the interior of the tank shall be sandblasted, cleaned thoroughly and given a protective coating of a material similar or equal to "Glyptal 1201" as manufactured by the General Electric Company.

2.1.5.1 Hydraulic Oil

The new hydraulic pump will be installed at a Lock and Dam facility in an existing hydraulic system which uses hydraulic oil conforming to MIL-L-17672B, Symbol 2075 T-H

2.1.5.2 Oil Filter

A duplex return line filter shall be provided as specified by the pump manufacturer and shall include a mechanical indicator with ten (10) micron filtration. The filter shall be selected in consultation with the pump manufacturer. Two shut-off valves shall be installed as shown on the drawing to isolate the filter for replacement.

2.1.5.3 Oil Filter Mounting Bracket

Structural steel plate for the oil filter mounting bracket shall conform to ASTM A 514/A 514M, Grade 100.

2.1.6 Structural Steel Base

The pump assembly units and reservoir shall be mounted upon a structural steel base, as indicated on the drawings. Structural steel tubing shall conform to ASTM A 500, Grade B, seamless or welded.

2.1.6.1 Lifting Eyes

Lifting eyes shall be welded to the structural steel base, as indicated on the drawings. Structural steel plate shall conform to ASTM A 514/A 5 14M, Grade 100.

2.2 PIPING AND ASSOCIATED MATERIALS

2.2.1 Black Steel Pipe

Pipe for the hydraulic system shall be seamless black steel pipe conforming to ASTM A 53, Type S, Grade A. Pipe for hydraulic pressure lines shall be Schedule 80. Pipe for hydraulic return, suction, and drain lines, shall be Schedule 40.

2.2.2 Pipe Fittings

2.2.2.1 Welded

Welded fittings for black steel pipe shall conform to ASTM A 234/A 234M, Grade WPB.

2.2.2.2 Flanged

Pipe flanges shall be steel, shall have a pressure rating corresponding to the schedule used, and shall be faced for use with metallic O-ring gaskets. Flanges shall conform to ASTM A 182/ A 182M, grade suitable for pipe to which attached. Facing on flanges shall be in accordance with SAME BI6.5. Flange bolts shall be steel and shall have steel self-locking nuts.

2.2.3 Packing, Gaskets, and Seals

Hydraulic components shall be equipped with seals, packings, gaskets, and O-rings selected and recommended by the respective manufacturers for maximum compatibility with the particular hydraulic fluid specified for use in the system. Red rubber, asbestos, or built-up gaskets using friction sheets shall not be used for oil lines.

2.2.4 Flexible Lines

Flexible hydraulic lines shall be wire reinforced, high-pressure type hose with synthetic rubber lining and outer cover. Synthetic rubber shall be selected for maximum compatibility with the hydraulic fluid specified for use in the system. Flexible hose shall be rated by the manufacturer for a working pressure not lower than the system operating pressure indicated. Fittings shall be specifically designed for use with the hose selected and shall be recommended by the hose manufacturer. The hose size shall be as indicated on the drawings. Each hose assembly shall be factory assembled using procedures and tools recommended by the manufacturer of the hose.

2.3 VALVES AND GAUGES

2.3.1 Check Valves

An inline mounted check valve having a 3,000 psi pressure rating shall be installed in the discharge line of each service pump.

2.3.2 Relief Valves

A relief valve shall be installed at the pump pressure header. These valves shall be of the poppet type with a response time of approximately 20 milliseconds. The valves shall be set to open at a pressure of 350 pounds per square inch.

2.3.3 Gate Valves

Gate valves shall be of the single wedge disc, bolted bonnet, outside screw and yoke type for the high pressure lines, and nonrising stem type for low pressure lines. Valve bodies for high pressure lines shall be of cast steel or forged steel with alloy steel or bronze stem and trim suitable for a maximum pressure of 2,000 pounds per square inch. Valves for low pressure lines may have cast iron bodies with brass stem and trim.

2.3.4 Pressure Gauges

Pressure gauges shall conform to ASME B40.1 with black enameled corrosion-resisting metal case. The dial shall be white enameled metal not less than six (6) inches in diameter with black numerals and graduations. The scale range of the gauge shall be approximately twice the maximum pressure of the circuit in which installed. Gauges shall be safety type with solid fronts and blowout backs. Each gauge shall be provided with an approved gauge snubber to dampen pressure pulsations. All permanently installed gauges shall have a shutoff valve arrangement to permit isolation of the gauge and snubber from the rest of the system.

2.4 ACCESSORIES

2.4.1 Bolts, Nuts, and Cap Screws

ASME B18.2.1, ASME B18.22, ASME B18.62 or ASTM A 574, as applicable. All bolts, cap screws, and nuts not otherwise indicated or specified shall be medium carbon steel and shall be hot-dipped galvanized. Threads shall conform to ASME B 1.1.

2.5 SUPPORT FRAME

The structural steel base containing the pump assembly units, reservoirs, valves, piping, and accessories shall be mounted upon an additional 3-foot high structural steel support frame, as indicated on the drawings. Structural steel tubing shall conform to ASTM A 500, Grade B, seamless or welded.

2.6 PORTABLE OIL FILTRATION CART

Contractor shall supply a portable oil filtration cart similar or equal to Parker, Model 10MFP240SA10QB16151 and ten (10) - 40 micron, ten (10) - 20 micron, and ten (10) - 10 micron elements for each hydraulic pump system. Filtration Units shall be delivery to PEWARS, the address is shown in paragraph 1.6.

PART 3 EXECUTION

3.1 CLEANING

The inside surfaces of all pipe shall be cleaned of all foreign matter at the mill. Immediately after cleaning and before leaving the mill, the ends of each individual length of pipe shall be capped with a suitable metal cap which shall fit the ends of the pipe with sufficient tightness to prevent entry of any foreign matter after capping. The capped ends of the pipes shall be sealed watertight, and the caps shall not be removed until the pipe is to be fitted up. Any pipe delivered uncapped shall be sent back to the mill for recleaning at no additional cost to the Government.

3.2 PAINTING

All equipment shall be cleaned, primed, and painted in accordance with the manufacturer's standard practice. Unless otherwise specified, finish colors shall be as selected by the Contracting Officer. No paint shall be applied to machine-finished surfaces. Pipe threading and cutting compounds shall be removed by solvent washing prior to application of paint to pipe surfaces. Hydraulic pipes shall be color coded black for the entire exposed length of the pipe.

3.3 OPERATING TESTS

Prior to delivery of the equipment, the hydraulic systems shall be tested as follows: The new main pressure piping shall be subjected to a test pressure of 700 pounds per square inch. The return, suction and drain lines shall be tested at a pressure of 250 pounds per square inch. Under the tests there shall be no leakage in the system. During the tests care shall be taken to avoid subjecting equipment to pressures in excess of their capacities. All leaks shall be remedied to the satisfaction of the Contracting Officer. Any defects in the system or damage to piping and equipment resulting from testing procedures shall be corrected by the Contractor at his expense and to the satisfaction of the Contracting Officer and a retest conducted. The Contractor shall notify the Contracting Officer one week prior to the operating test.

3.4 OPERATOR'S INSTRUCTIONS

3.4.1 Instructions, Drawings, Parts, and Operation Information

Two copies of complete instructions shall be supplied to Contracting Officer two (2) weeks prior to final acceptance. Material shall be in booklet form and shall consist of operating and maintenance manuals, parts manuals, dimensional drawings, unit wiring diagrams and schematics, interconnection wiring diagrams, and necessary information for proper operation, service, and maintenance of the equipment and major components supplied. Contracting Officer at the time of final acceptance tests shall review the operation and parts books, correct starting and control methods, and recommend preventive maintenance procedures.

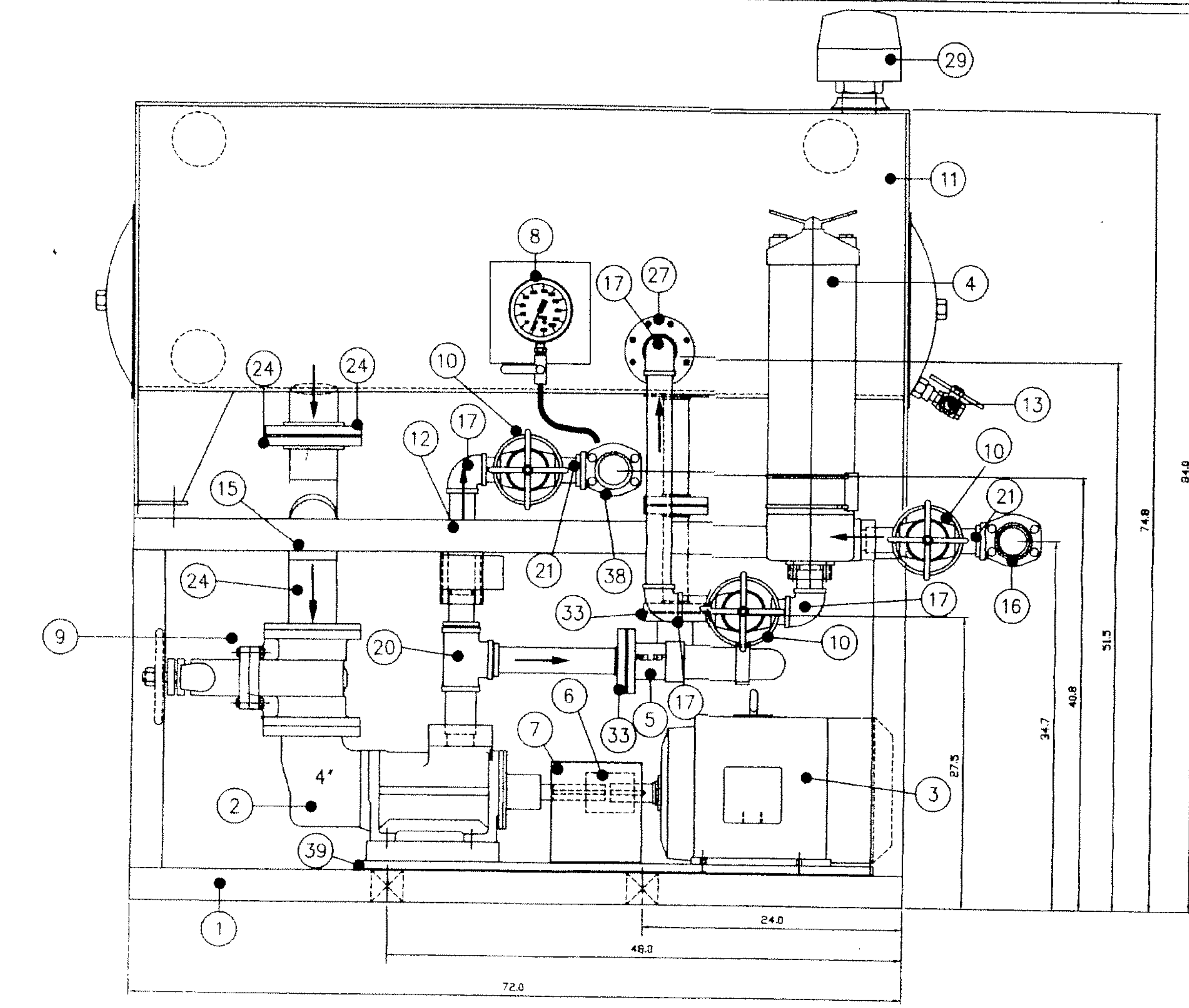
The Contractor shall supply four (4) complete sets of the final approved operating and maintenance manuals, parts manuals, dimensional drawings, unit wiring diagrams and schematics, interconnection wiring diagrams, and necessary information for proper operation, service, and maintenance of the equipment and major components supplied.

3.5 MANUFACTURER'S FIELD SERVICE

The equipment furnished under this contract will be installed by separate contract(s) at a later date. However, the services of a representative of the equipment manufacturer who is experienced in the installation, adjustment, and operation of the equipment specified shall be provided under this contract. The equipment will be installed under separate contract(s) within three (3) years after the delivery date of the equipment. The manufacturer shall expect to provide the services of a representative within this time period. For each installation location, the representative's services shall be made available to the installation contractor upon notification to the manufacturer. The manufacturer's services shall include providing a manufacturer's representative who shall supervise the installation, adjustment and tests of the equipment, and shall provide field training to the operating staff as required below. The representative shall have at least three (3) years of current experience in the installation and operation of similar systems and shall be an employee of the manufacturer, or manufacturer's local distributor. The manufacturer's representative shall be available within 24 hours notice for assistance as required by the installation contractor(s).

3.5.1 Field Training

The equipment furnished under this contract will be installed under separate contract(s) within three (3) years after the delivery date of the equipment. The manufacturer shall expect to provide the services of a representative within this time period. Upon installation of the equipment, at each installation site, the Contractor shall conduct a field training course for operating staff as designated by the Contracting Officer. The training period shall consist of a total eight hours of normal working time and shall start after all equipment is installed and functionally complete under separate contract(s). The field instructions shall cover all of the items contained in the Operation and Maintenance Manuals, as well as demonstrations of routine maintenance operations. The Contracting Officer shall be notified at least 14 days prior to the proposed date of the training course.



TEMPORARY HYDRAULIC POWER UNIT DETAIL

REFERENCE DRAWINGS:
LUBRICATION SCHEMATIC # 73 MFG-DACW-6

SEE SHEET # 2 FOR NOTES

ITEM NO.	REQ'D	SIZE	DESCRIPTION	VENDOR/ MATERIAL	73 MFG CO INC PART NO.
1	1	6'X 4'X 3'	SUPPORT FRAME 3"X 1/4" SQUARE STEEL TUBING	ASTM A36	X
2	1	- - -	OIL PUMP, # 94300-250	IMO	XX
3	2	- - -	MOTOR, 25 HP @ 1800 RPM, 3/60/460V., 284T, 10°C	BALDOR	XX
4	1	2"	OIL FILTER 2" SAE FLANGES PAUL HH8300D32MN/Y-1	PAUL	XX
5	2	2"	RELIEF VALVE, WF-6R-HB-YS	FULFLO	XX
6	2	- - -	PUMP COUPLING, C2X 1-1/2 / C2X 1-7/8	LOVEJOY	X
7	1	- - -	COUPLING GUARD	73 MFG STEEL	X
8	1	6"	PRESSURE GAUGE, #6-1379-A3-046 0-600 PSI	ASHCROFT	XX
9	2	4"	GATE VALVE, 4" CLASS 125 IRON BODY NIBCO # F619	NIBCO COMMERCIAL	XX
10	4	2"	GATE VALVE, 2" CLASS 800 STEEL BODY NPAC - EF570	NPAC COMMERCIAL	XX
11	1	72"X38.5"X48"	J.I.C. TYPE RESERVOIR 400 GALLON STYLE - 72"X 38.5"X 48"	73 MFG.CO STEEL	XX
12	2	2"	CHECK VALVE, 2" MODEL CV32-3 FLUID POWER CONTROLS	SAE FLANGE CAST IRON	XX
13	1	3/4"	3/4" 125# DRAIN COCK LOCK TYPE	STAINLESS STEEL	X
14	4	2"	WELD FLANGE 2"SAE 32-22	STEEL	XX
15	1	4"	SCH.40 BLACK STEEL BUTT-WELD 90° ELBOW	X	XX
16	1	3"	3" SAE FLANGE	X	XX
17	7	2"	3000# FORGED STEEL SOCKET-WELD 90° ELBOW	X	XX
18	1	4"	SCH.40 BLACK STEEL BUTT-WELD TEE	X	XX
19	1	3"	3000# FORGED STEEL SOCKET-WELD TEE	X	XX
20	4	2"	3000# FORGED STEEL SOCKET-WELD TEE	X	XX
21	3	3"X 2"	3000# FORGED STEEL SOCKET-WELD REDUCING INSERT	X	XX
22	2	2-1/2"X 2"	CONCENTRIC REDUCER	X	XX
23	2	3X2	3000# FORGED STEEL SOCKET-WELD REDUCING INSERT	X	XX
24	4	4"	150# BLACK STEEL SLIP-ON-FLANGE	X	XX
25	-	-	-	X	XX
26	-	-	-	X	XX
27	2	2"	300# FORGED STEEL SOCKET-WELD FLANGE	X	XX
28	1	1/4" PLATE	OIL FILTER MOUNTING BRACKET	X	XX
29	2	2"	FILLER / BREATHER	X	XX
30	1	[illegible]	OIL LEVEL GAUGE & ISOLATING VALVES	X	XX
31	4	3/4" PLATE	LIFTING EYES	X	XX
32	-	-	-	X	XX
33	6	2"	CL.300 FORGED STEEL SOCKET-WELD FLANGE, ANSI B16.5	X	XX
34	-	-	-	X	XX
35	-	-	-	X	XX
36	JOB	GRADE 8	BOLTS FOR FLANGES	X	XX
37	-	-	-	X	XX
38	1	-	3" SAE FLANGE	X	XX
39	2	-	3/4"X 15"X 60" STEEL PLATE	STEEL	XX
40	1	1/2"	1/2" GAUGE ISOLATION BALL VALVE	STAINLESS STEEL	X

AUG 01 2001

CONTRACT # DACW 59-01-C-0003

73 SEVENTY THREE MFG. CO. INC.

TEMPORARY HYDRAULIC POWER UNIT

DACW5801C0003

<SEE NOTES>

<SEE NOTES>

A.H.

03/12/01

100 GPM

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73 MFG-DACW-2

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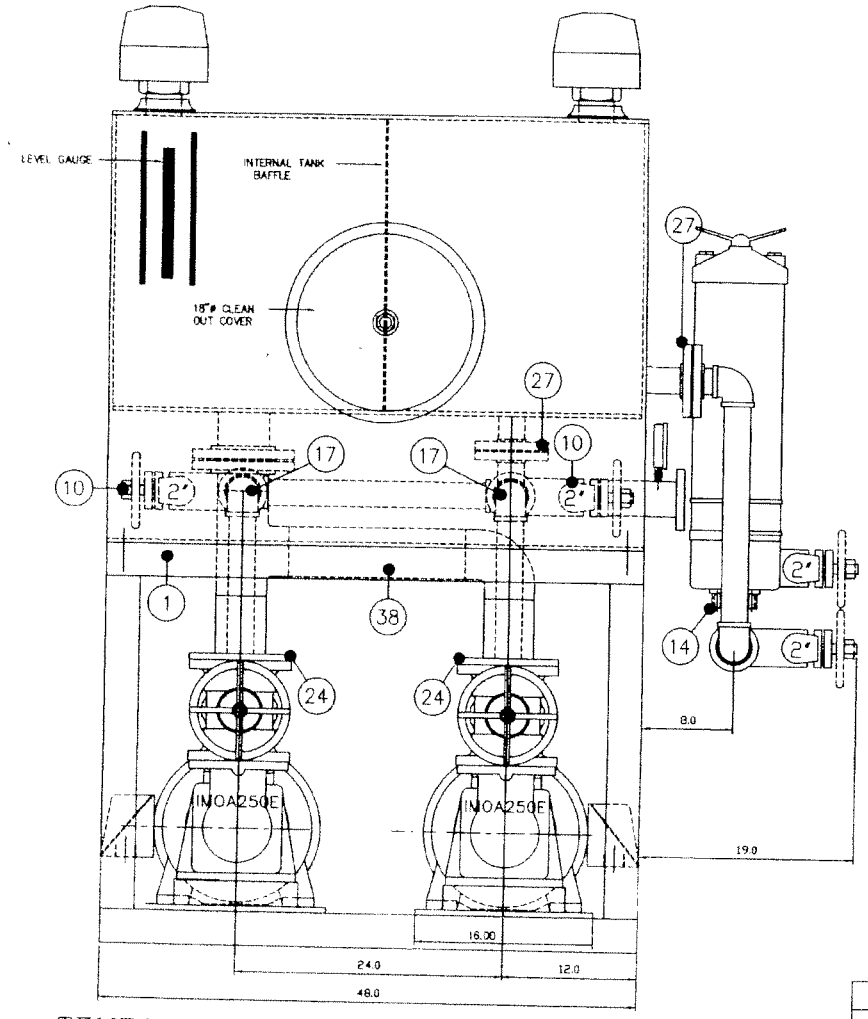


TEMPORARY HYDRAULIC POWER UNIT DETAIL

NOTE:
1. ALL OPENINGS IN THE 400 GALLON HYDRAULIC FLUID RESERVOIR SHALL BE REINFORCED.
2. THE TANK SHALL BE TESTED FOR LEAKS AT A HYDROSTATIC PRESSURE OF 10 P.S.I. ANY LEAKS SHALL BE REPAIRED.
3. AFTER ANY LEAKS ARE REPAIRED, THE TANK INTERIOR SHALL BE SAND BLASTED, THOROUGHLY CLEANED, AND GIVEN A PROTECTIVE COATING OF "GLYPTAL 1201" AS MANUFACTURED BY THE GENERAL ELECTRIC CO.
4. THE TANK EXTERIOR SHALL BE PAINTED WITH MANUFACTURE'S STANDARD GRAY FINISH.
5. POWER UNIT TO BE ANCHORED TO FLOOR AS REQUIRED BY P 3,3.1- SEC 15480 PAGE 15 OF CONTRACT SPECS.
6. PAINTING OF PIPING, VALVES, FILTER & SUPPORTS TO BE IN ACCORDANCE WITH P3,5 SEC 15480 PAGE 16 OF CONTRACT SPECS.

NOTE:
1. PIPING SHALL BE SCH. 40 & 80, SEAMLESS CARBON STEEL. ALL PIPING SHALL BE WELDED.
2. JOINTS SHALL BE PROVIDED AS REQUIRED TO FACILITATE DISASSEMBLY.
3. LUBE PIPING SHALL BE THOROUGHLY CLEANED, FREE OF SLAG, WELDING BEADS AND OTHER FOREIGN MATTER. (WELDED PIPING SHALL BE PICKLED.)
4. ALL FLANGE OPENINGS SHALL HAVE SUBSTANTIAL WOOD, METAL OR EQUIVALANT CLOSURES. ALL TAPPED OPENINGS SHALL BE PLUGGED WITH METAL OR PLASTIC CLOSURES.
5. COMPLETE HYDRAULIC POWER UNIT SHALL BE TESTED CLEANED AND PAINTED

AUG 01 2001

CONTRACT # DACW 59-01-C-0003

	DACW59-01-C-0003	73	SEVENTY THREE MFG. CO. INC.
	<SEE NOTES>		TEMPORARY HYDRAULIC POWER UNIT
	<SEE NOTES>		
	A.H.		
	03/12/01		
	100 GPM	D	– 73 MFG-DACW-3 A

CAUTION

THIS PROCEDURE IS FURNISHED ONLY TO PROVIDE BASIC INFORMATION IN REGARD TO SEQUENCE FOR OPERATION OF 73 MFG. CO. SUPPLIED EQUIPMENT.

THE OPERATIONAL CONTROL SYSTEM, INCLUDING ALL SAFETY INTERLOCKS REQUIRED TO PROTECT THE ENTIRE SYSTEM SHALL BE DEVELOPED AND FURNISHED BY OTHERS.

LUBE NOTES:

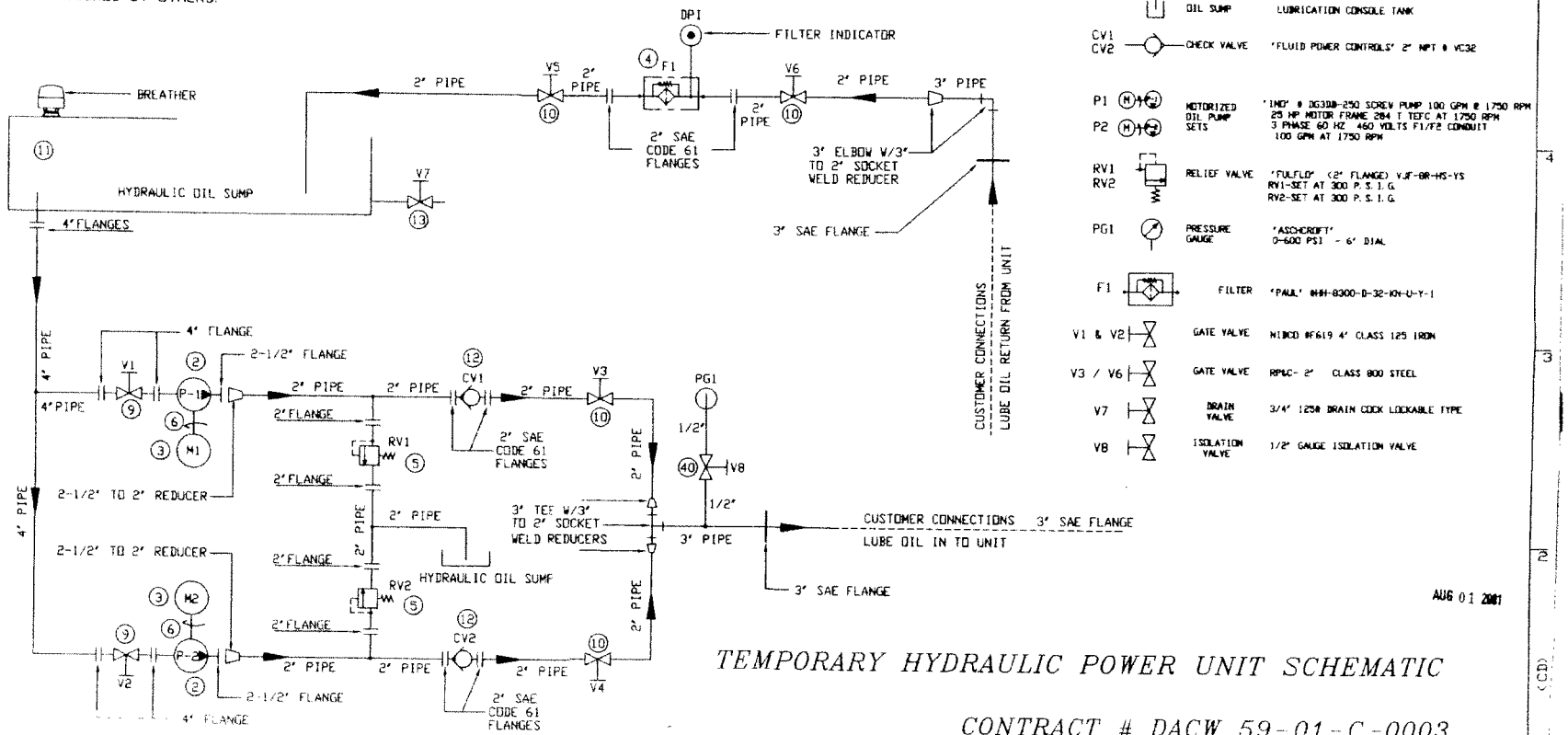
1. HYDRAULIC POWER UNIT IS MOUNTED ON A BASE FRAME.
2. HYDRAULIC SYSTEM RATING:
   PUMP/MOTOR: 100 GPM @ 25 HP/1750 RPM
3. SUMP CAPACITY: 400 GAL.
4. HYDRAULIC OIL - 225 / 1000 SSU

"CAUTION"

IT IS POSSIBLE THAT THE ADDITIVES EMPLOYED TO ENHANCE THE LUBRICANT USED BY OUR CUSTOMERS IN 73 MFG. CO SUPPLIED EQUIPMENT MAY HAVE AN ADVERSE EFFECT ON THE ELASTOMERIC MATERIALS OR OTHER MECHANICAL SYSTEM COMPONENTS IN CONTACT WITH THE LUBRICANT. "IT IS THE RESPONSIBILITY OF THE CUSTOMER TO USE OIL LUBRICANT THAT WILL NOT REACT WITH BUNA-N,NITRILE OR VITON SEAL MATERIALS USED IN 73 MFG. EQUIPMENT" ""73 MFG. CO. ASSUMES NO RESPONSIBILITY FOR LUBRICANT COMPATIBILITY""

SYMBOLS:

	OIL SUMP	LUBRICATION CONSOLE TANK
CV1 CV2	CHECK VALVE	'FLUID POWER CONTROLS' 2" NPT # VC32
P1 P2	MOTORIZED OIL PUMP SETS	'IMO' # DG308-250 SCREW PUMP 100 GPM @ 1750 RPM 25 HP MOTOR FRAME 284 T TEFC AT 1750 RPM 3 PHASE 60 HZ 460 VOLTS F1/F2 CONDUIT 100 GPM AT 1750 RPM
RV1 RV2	RELIEF VALVE	'FULFLO' (2" FLANGE) VJF-6R-HS-YS RV1-SET AT 300 P.S.I.G. RV2-SET AT 300 P.S.I.G.
PG1	PRESSURE GAUGE	'ASHCROFT' 0-600 PSI - 6" DIAL
F1	FILTER	'PAUL' #HH-8300-D-32-KN-U-Y-1
V1 & V2	GATE VALVE	NIBCO #F619 4" CLASS 125 IRON
V3 / V6	GATE VALVE	RPBC- 2" CLASS 800 STEEL
V7	DRAIN VALVE	3/4" 1250 DRAIN COCK LOCKABLE TYPE
V8	ISOLATION VALVE	1/2" GAUGE ISOLATION VALVE



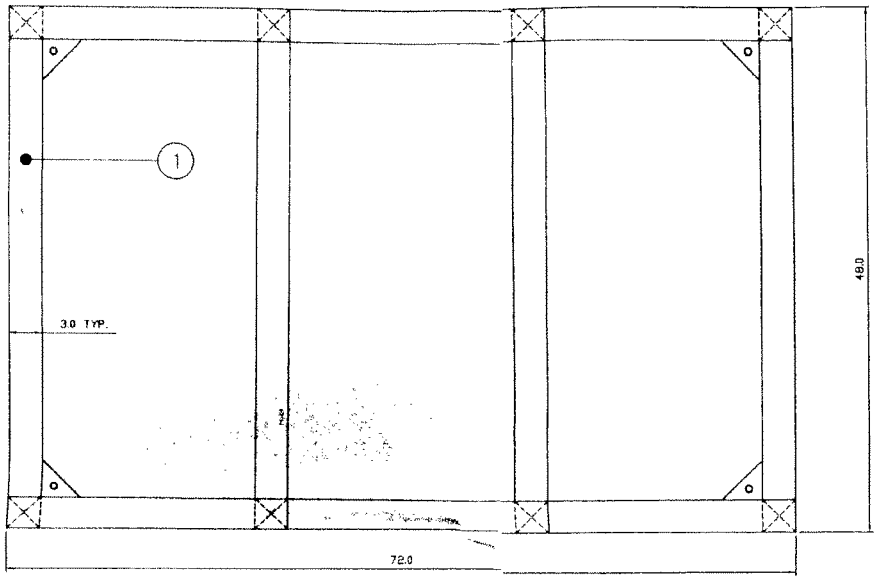
AUG 01 2001

TEMPORARY HYDRAULIC POWER UNIT SCHEMATIC

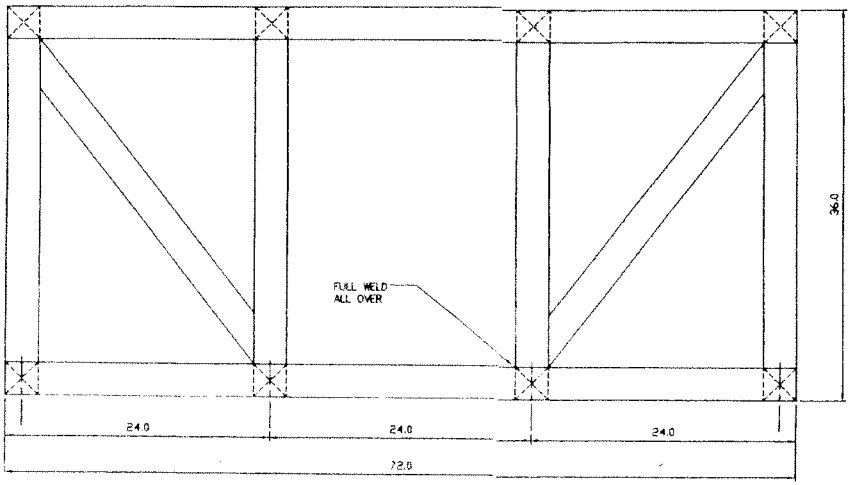
CONTRACT # DACW 59-01-C-0003

REVISIONS	
73	SEVENTY THREE MFG. CO. INC.
TITLE	HYDRAULIC POWER UNIT LUBE SCHEMATIC
MACHINE SIZE	100 GPM
DRN.	A. H.
CHKD.	-
APPVD.	-
DATE	03/26/01
SCALE	NONE
DWG. NO.	73 MFG-DACW-6
SIZE	3
REV.	A
SHEET	1 OF 1

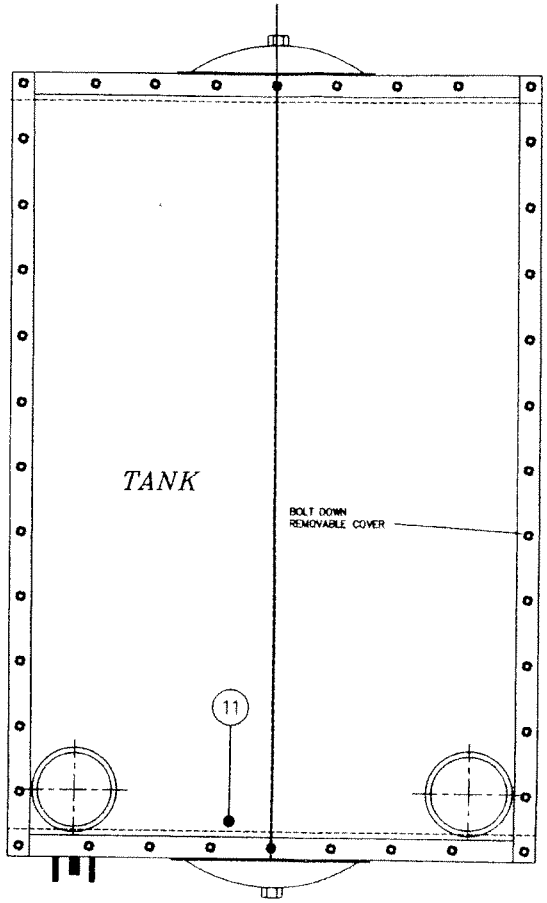
ORIGINAL DWG. NO. (CD)



MOUNTING FRAME



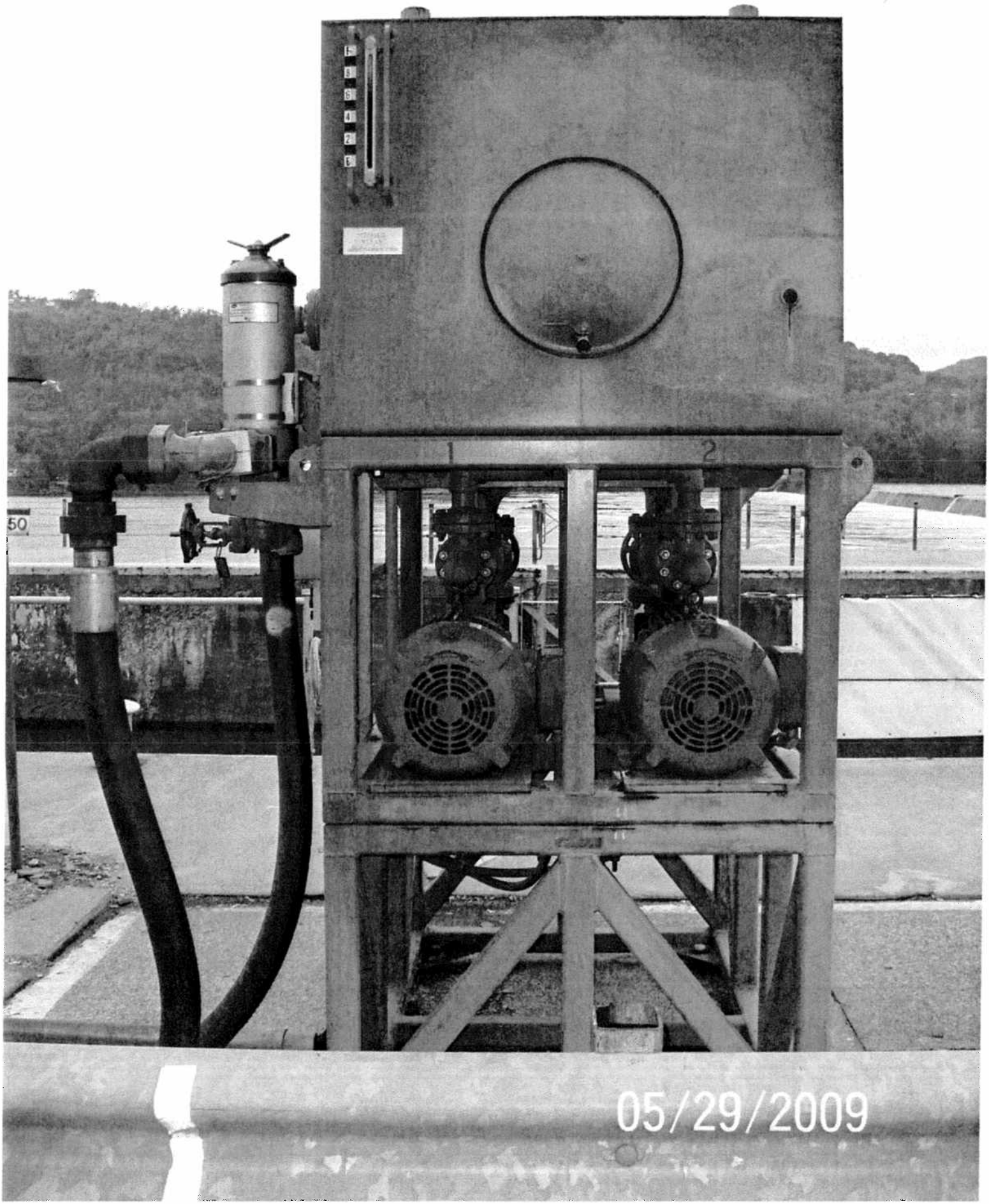
TEMPORARY HYDRAULIC POWER UNIT DETAIL



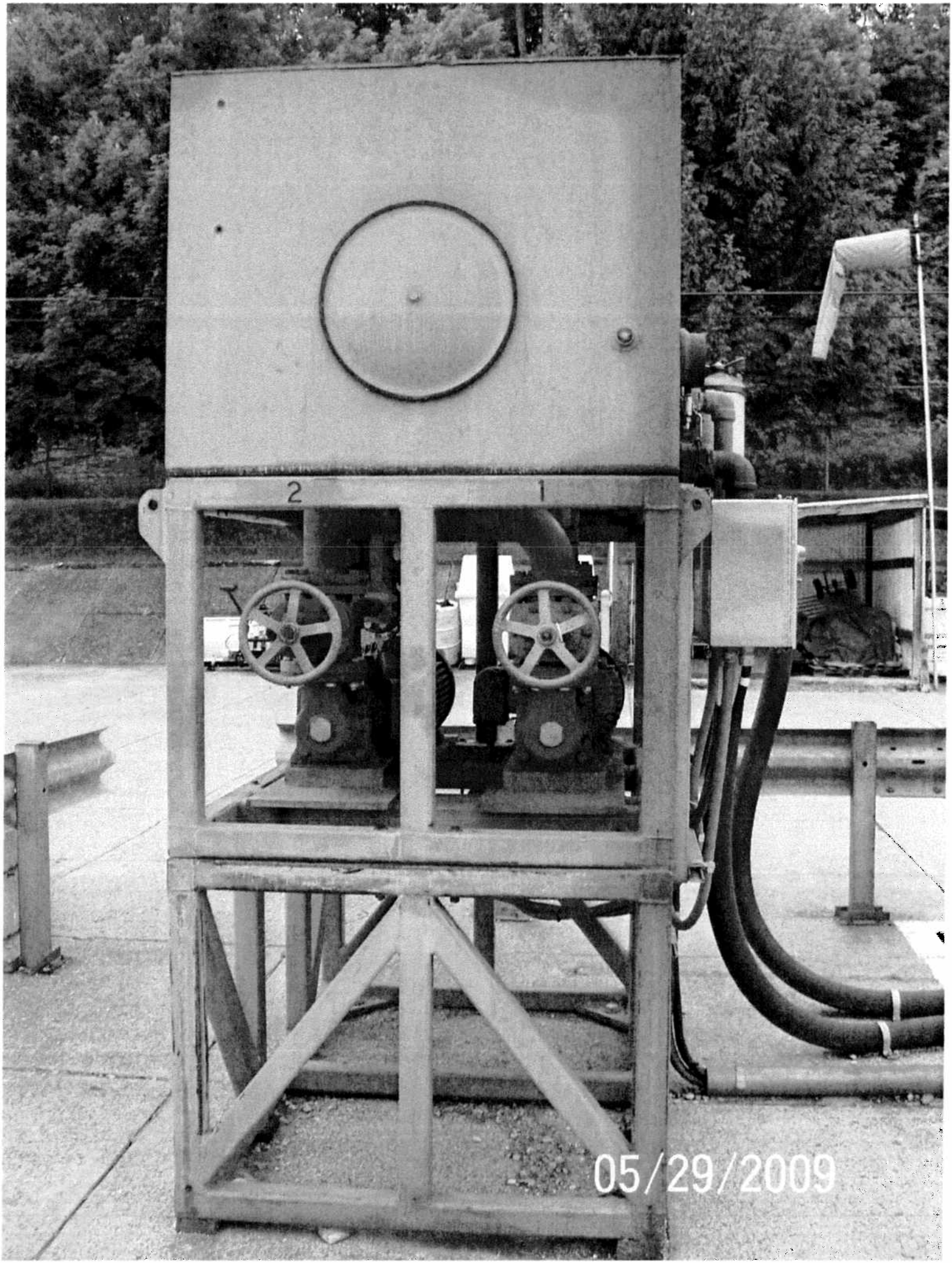
AUG 01 2001

CONTRACT # DACW 59-01-C-0003

DACW59-01-C-0003	73	SEVENTY THREE MFG. CO. INC
<SEE NOTES>		TEMPORARY HYDRAULIC POWER UNIT
<SEE NOTES>		
A.H.		
03/13/01		
100 GPM	D	73 MFG-DACW--4 A
	3/16	


05/29/2009


05/29/2009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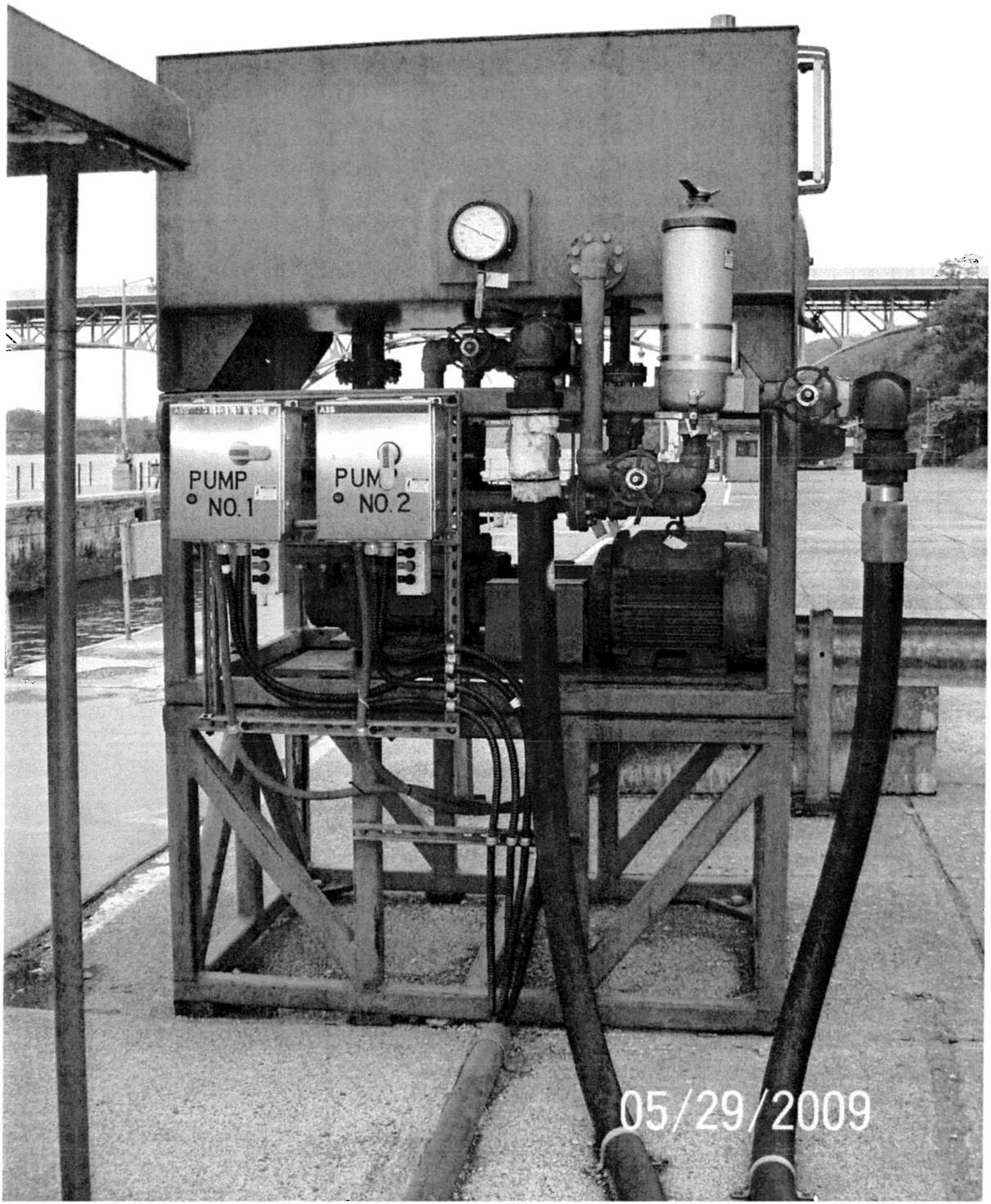
05/29/2009


PUMP
NO.1
PUM
NO.2
05/29/2009